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Nota di contenuto	1. Toward a Global Geopolitical and Goeconomic Concept of Powers? 2. NATO-Russia Relations after September 11th 3. Seismic Shifts in Eurasia: The changing relationship between Turkey and Russia and its implications for the South Caucasus 4. The Economics and Politics of Caspian Oil: A Greek perspective 5. Silk Road, Great Game or soft-underbelly?: The new US-Russia relationship and implications for Eurasia 6. Balkan Security: What security? Whose security? 7. The Evolving Security Concern in the Black Sea Economic Cooperation

Sommario/riassunto In this examination of the global system's political and economic instability after the events of September 2001, a number of contributors explore the implications for the countries of Eurasia.

2. Record Nr.	UNINA9910620200903321
Autore	Avinasa Kumara
Titolo	Anomalous relaxation in colloidal systems // Avinash Kumar
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ISBN	9783031132803 9783031132797
Descrizione fisica	1 online resource (135 pages)
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Soggetti	Colloids - Freezing
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di contenuto	Intro -- Supervisor's Foreword -- Acknowledgments -- Contents -- Parts of This Thesis Have Been Published in the Following Journal Articles -- 1 Introduction -- 1.1 History of the Mpemba Effect -- 1.2 Explanations for the Mpemba Effect -- 1.3 Mpemba Effect in Other Systems -- 1.3.1 Experiments -- 1.3.2 Numerical Studies -- 1.4 Mpemba Effect in Colloidal Systems -- 1.5 Particle Manipulation Techniques -- 1.5.1 Passive Trapping -- Optical Tweezers -- Magnetic Tweezers -- Holographic Tweezers -- 1.5.2 Active Trapping -- Electrokinetic Traps -- Hydrodynamic Traps -- Acoustic Traps -- Thermal Traps -- 1.6 Combining Feedback Traps and Optical Tweezers -- 1.7 Overview of the Thesis -- References -- 2 Particle Dynamics -- 2.1 The Langevin Equation -- 2.1.1 A Free Particle -- 2.1.2 A Trapped Particle -- 2.2 Fokker-Planck Equation -- 2.2.1 Adjoint of the Fokker-Planck Operator -- 2.2.2 Eigenfunctions and Eigenvalues of the Fokker-Planck Operator -- 2.2.3 Fokker-Planck Equation with no Drift -- 2.3 Heat Equation -- 2.4 Supplementary Information -- 2.4.1 A Similarity Transformation of the Fokker-Planck Operator -- References -- 3 Optical Feedback Traps -- 3.1 Principles of Optical Tweezers --

3.2 Optical Tweezers Setup -- 3.2.1 Faraday Isolator -- 3.2.2 Acousto-Optic Deflector -- 3.2.3 Detection Scheme -- 3.2.4 Control and Data Acquisition -- 3.3 Sample Preparation -- 3.4 Calibration -- 3.4.1 Position Calibration -- 3.4.2 Trap-Stiffness Calibration -- 3.5 Virtual Harmonic Potential -- 3.6 Isotropic Traps -- 3.7 Virtual Double-Well Potential -- 3.8 Discussion -- References -- 4 Mpemba Effect -- 4.1 Definition of the Mpemba Effect -- 4.2 Energy Landscape for the Mpemba Effect -- 4.2.1 Choice of Potential Energy Landscape -- 4.3 Imposing an Instantaneous Quench via Initial Conditions -- 4.4 Measuring the Distance to Equilibrium -- 4.4.1 L1 distance Distance. 4.4.2 Kullback-Leibler (KL) Divergence -- 4.5 Observation of the Mpemba Effect in Asymmetric Domains -- 4.6 Analysis Based on Eigenfunction Expansion -- 4.6.1 Calculation of the a_2 Coefficient -- 4.6.2 Relationship Between D and the a_2 Coefficient -- 4.7 Strong Mpemba Effect -- 4.8 Geometric Interpretation of the Mpemba Effect -- 4.8.1 Thermalization in a Double-Well Potential with Metastability -- 4.8.2 Metastable Mpemba Effect -- 4.8.3 Metastable Mpemba Effect in Terms of Extractable Work -- 4.9 Discussion -- 4.10 Supplementary Information -- 4.10.1 Infinite Potential vs. Finite Potential -- 4.10.2 Calculation of Equilibration Time -- 4.10.3 Equilibration Time Versus the a_2 Coefficient -- 4.10.4 Barrier Height vs. Discontinuity in Local Equilibrium -- References -- 5 Inverse Mpemba Effect -- 5.1 Energy Landscape for the Inverse Mpemba Effect -- 5.2 Inverse Mpemba Effect in an Asymmetric Potential -- 5.3 Analysis Based on Eigenfunction Expansion -- 5.4 Discussion -- References -- 6 Higher-Order Mpemba Effect -- 6.1 Experiment -- 6.2 Eigenfunction Analysis -- 6.3 Mpemba Effect in a Potential with One Local Minimum -- 6.4 Discussion -- Reference -- 7 Conclusions -- 7.1 Summary of the Results Obtained -- 7.2 Final Remarks -- References.
